

SWBAT

apply velocity vectors to
a launcher

Sep 4-7:31 AM

Welcome!!!

SECA CP Physics
Monday 4 January 2016

H. Leslie Grebe
Room C-244

Centering
(quotes)

- Show me you are passing on SchoolView, or secure phone!
- Adding "My Vectors"
- Vector packet

Opening Activity - Quick Write!

What things do we know in any free
fall / projectile problem?

$$a_y = -9.81 \text{ m/s}^2$$

V_y CHANGES

V_x : STAYS THE SAME

LIST KNOWN & UNKNOWN

REVIEW

OF PG 43

$$\begin{array}{c} x \\ \hline V_x \\ \Delta t \\ \Delta x \end{array} \rightarrow \begin{array}{c} y \\ \hline a_y \\ V_{iy} \\ V_{fy} \\ \Delta y \end{array}$$

Knowing is not enough; we must apply. Willing is not enough; we must do.

Johann Wolfgang von Goethe

Sep 7-7:04 AM

What we should have solid:

Memorize our 5 vocab cards, units, vector or not, definition, formula

Be able to answer distance vs displacement questions

Be able to make measurements of real-life motion. Know what is likely to make timing things difficult and how to get more reliable timing results

Be able to convert between miles and meters, between hours, minutes, and seconds

Be able to calculate speed = dist/time and velocity = disp/time

Know what all of the symbols in the UAM equations stand for and mean

Be able to turn a UAM word problem into a list of knowns and unknowns

Be able to pick the equation with those 4 things in it

Be able to put the knowns into that equation

(Be able to solve for the unknown)

→ PROJECTILES: V_x IS CONSTANT; $a_y = -9.8 \text{ m/s}^2$ ^{V_y CHANGES} PG 42
 PG 43 TIME, Δt , CONNECTS x & y
 PG 49 VECTORS INTO x & y , ADD VECTORS
 SOH - CAH - TOA

QW every day to review? Volunteer answers on board?

Dec 4-9:15 AM

Unit	Chapters	Date
Left-Side Items	Page	Right-Side Items
REFLECTION ON NOTES	2	Ed Ed Adam Savage
HOW FAR FROM BRIDGE	4	"FORT STUEBEN"
REFLECTION ON NOTES	6	Hmwk: BASIC UNITS
PR: DISTANCE & DISPLACEMENT	8	Hmwk: FP DISPLACEMENT
DIAGRAM & STEPS	10	TIMING & ERROR
SUMMARY OF TIMING	12	How to BUILD a TABLE
PR: CONVERTING SOLNS	14	Hmwk: FP CONVERSIONS
PR: VELOCITY & SPEED	16	Hmwk: FP SPEED & VELOCITY
SPEED WORD PROBLEMS	18	ALGEBRA FOR PHYSICS
LAB JOURNAL 10/7	20	LAB JOURNAL 10/8
LAB JOURNAL 10/12	24	Hmwk: FP GRAPH POSITION
26	USE FOR PROJECT	27
OBSERVATIONS OF ORF	28	FP: INTRO TO ACC.
REVIEW FOR TEST	30	BALL ON RAMP
VECTORS, DIRECTION	32	FP: BASIC ACC EXAMPLE
PRACTICE UAM	34	FP: INTRO TO UAM
FALLING OBJECTS PACKET	36	FP: INTRO TO FREEFALL
MY FREE FALL WORD PROBLEM	38	3-ACT FALLING GLOWSTICK
Toy popper experiment	40	Free fall class solutions
Launched vs. Dropped	42	FP: INTRO TO PROJECTILE MOTION
PROJECTILE SIMULATOR	44	FP: PROJ. MOTION PROBLEM
PROJ'L PRACTICE PROB	46	PROJECTILES PRACTICE
OUR VECTOR PRACTICE	48	FP - INTRO TO VECTOR COMPONENTS
VECTOR PACKET	50	NOTES ON ADDING VECTORS
MEASURE LAUNCHER	52	NOTES ON FINDING V_x & V_y

Sep 5-9:09 AM

Hmwk / Classwork DUE TUES 1/5

<http://www.physicsclassroom.com/Physics-Interactives/Vectors-and-Projectiles>



Use websites to reinforce learning

Vector PACKET

CONGRATULATIONS!!!!

The class (everyone on the roster) took / re-took the quiz and the class average is 76%!

= GAME DAY!

Class Challenge: Find initial velocity and angle of marshmallow launcher!

Hmwk Pg 53 - Due Wed 1/6:

How will we do this?

Dec 17-8:10 AM

NOTES ON ADDING VECTORS PG 51

3 DIFFERENT WAYS TO ADD VECTORS

#1) SOH-CAH-TOA (PG 48 PRACTICE)

SPLIT EACH INTO x & y

ADD x s, ADD y s

$\tan \theta = \frac{y}{x}$

$\theta = \tan^{-1} \left(\frac{y_1 + y_2}{x_1 + x_2} \right)$

$d = \sqrt{(x_1 + x_2)^2 + (y_1 + y_2)^2}$

RESULTANT


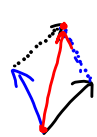
#2) "TIP TO TAIL"

TAIL \rightarrow TIP

- LINE UP 2 VECTORS
- NO TWISTING
- DRAW IN RESULTANT FROM START OF 1ST TO END OF 2ND

#3) PARALLELOGRAM METHOD

- NO TWISTING
- "SLIDE" EACH UP ALONG THE OTHER TO MAKE A PARALLELOGRAM
- RESULTANT IS FROM WHERE BOTH START TO WHERE BOTH END.

Dec 22-9:49 AM

Name _____ Class _____ Date _____

Concept-Development
Practice Page

5-2

Vectors

Use the parallelogram rule to carefully construct the resultants for the eight pairs of vectors.

Dec 22-10:05 AM

cpcd0502.pdf - Adobe Reader

File Edit View Window Help

Open 1 / 2 107% Tools Fill & Sign Comment

Carefully construct the vertical and horizontal components of the eight vectors.

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CONCEPTUAL PHYSICS

Dec 22-10:10 AM

The diagram illustrates the motion of an object in a 2D plane. A dashed line represents the object's parabolic trajectory. At the start of the trajectory, a vertical arrow points upwards and is labeled 30 m/s . A horizontal arrow points to the right and is labeled 5 m/s . A blue handwritten note next to the vertical arrow says $g = -10 \text{ m/s}$ EACH SEC. The trajectory passes through several rectangular boxes representing the object at different points in time. A speech bubble from a character says: "Use the geometry theorem $c^2 = a^2 + b^2$ to find the resultant velocities." Another speech bubble from a character says: "More specifically, $V = \sqrt{V_x^2 + V_y^2}$ ". The diagram is shown within a software window with a toolbar at the top containing icons for opening files, saving, erasing, and other drawing tools. The window title bar shows "Open", "2 / 2", "107%", "Tools", "Fill & Sign", and "Comment". A "View or add comments" button is also visible.

Dec 22-10:12 AM